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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/872,246

05/31/2001

Mark Chiang

LSI-00-483

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7590

07/22/2005

LSI Logic Corporation
Patent Law Department
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EXAMINER

PATEL, JAY P

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/872,246

Applicant(s)

CHIANG, MARK

Examiner

Jay P. Patel

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 1/24/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-11 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 7) ☒ Claim(s) 4, 8, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behzadi (U.S. Patent No. 6728220 B2) further in view of Satran et al. (6430183 B1).
3. In regards to claims 1 and 5, Behzadi discloses a dynamic break loop capable closed loop network comprising: a plurality of switches wherein each switch has two uplink ports and each uplink port has a set of dynamic break loop logic functions. In figure 7 of the reference, a ring with an odd number (7) of switches is disclosed (column 7 lines 56 through 67 continued on column 8 lines 1 through 57). Behzadi discloses a method for preventing transmission loops "between a plurality of network nodes that are connected by transmission links to form a ring, wherein each network node on the ring includes a right side ring port that is connected to a right side neighbor and a left side ring port that is connected to a left side neighbor," (column 3 lines 6 through 11). In a switch for a dynamic break loop capable closed loop network, the switch comprising two uplink ports, in figure 4, Behzadi discloses a right side ring port 450 and a left side ring port 452.

In regards to a plurality of links connecting the plurality of switches into a closed loop, wherein the set of dynamic break loop logic functions enables the network to operate dynamically as a plurality of open loop networks using an ID number and the set of dynamic break loop logic functions provided for the uplink ports, Behzadi discloses in figure 7, a ring with an odd number (7) of switches (column 7 lines 56 through 67 continued on column 8 lines 1 through 57). To prevent transmission loops in the ring topology, a number of hops that the right sided ring packet travels plus the number of hops that a left side ring packet travels must be less than or equal to $N-1$ (N minus 1 where N is the number of switches in the node). The reference further discloses that a TTL (time to live) value is determined for the right and the left side port. If the TTL value is 0 or 1 then the packet is not forwarded to then next hop. The TTL values are determined as follows:

Right TTL = Max Right Hops + 2;

Left TTL = Max Left Hops + 2;

Max Right Hops = Max Left Hops = $(N - 1)/2$; (when N is an odd positive integer);

Max Right Hops = $[(N - 1)/2] + 1$; (when N is an even positive integer);

Max Left Hops = $(N - 1)/2$; (when N is an even positive integer);

For example, in figure 7 there are 7 switches and switch 736 is designated as the transmitting switches. Applying the above formula for a ring with odd number of switches, the number of right hops will be $[(7 - 1)/2] = 3$ and the same applies for the number of left hops. Therefore on the right side, the packet will travel from node 736 to node 734 on to node 732 and stop at node 730; on the left side, the packet will travel

from node 736 to node 738 on to node 740 and stop 742. The right side packet stops at node 730 and the left side will stop at node 742. Therefore, the link 758 between nodes 742 and 730 is unused and therefore, dynamically broken. A similar procedure is described for an even number of switches in a ring (column 9 and figure 10). In regards to using the user ID, Behzadi discloses in figures 5 and 6 a right side and left side ring packet respectively. And the packets have the source and destination addresses inserted in them.

Behzadi fails to particularly disclose, using a filter ID. Satran however, discloses the above-mentioned limitation. Figure 5 discloses a data reception procedure. The first task of the receiver is to filter the received data for desired packets by examining the source ID and the destination ID (column 6, lines 39-44). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the filtering process disclosed by Satran with the transmission loop prevention method disclosed by Behzadi. The proper motivation comes from Behzadi where it is stated that to prevent problems of problems caused by flooding, multicasting, and broadcasting, "a technique is needed that prevents transmission loops" (column 2, lines 56-59).

In regards to claims 2 and 6, Behzadi discloses a set of dynamic break loop logic functions capable of being enabled or disabled. Behzadi discloses setting the right side TTL (time to live) value and left side TTL value such that the furthest transmission link from the first network node is not utilized by the right or left side packet (see column 3 lines 41-46 also see the right TTL and left TTL equations in column 8).

In regards to claims 3 and 7, Behzadi discloses a means for inserting the ID number of a source switch into each frame that is transmitted from the switch. In figure 2, figure 2 of the reference shows the labeling protocol that the packets use; particularly the multi-protocol label switching protocol. The labeled packet includes a MAC header that further includes the source address.

In further regards to claims 3 and 7, Behzadi discloses a means for enabling a transmit and receive functions of each uplink port to monitor the ID number of each frame. In figure 12, Behzadi discloses an expanded view of two adjacent nodes on the ring. Each node (the nodes are all label switch routers (LSRs)) includes a right side ring port, a left side ring port, a packet processor, an MPLS processor and a loop protection module (column 10 lines 34-42). Further more, each LSR has at minimum one incoming and one outgoing unidirectional LSP associated with the ring. The packet processor handles the Data Link Layer and Network layer functions that are carried out by the LSRs. The MPLS processor manages the MPLS functions of the LSR. It generates the shim headers for the packets, decrements the TTL values, provides labeling values and maintains a label information base. The MPLS processor anticipates the enabling of the receive function of each uplink port to monitor the ID number of each frame (see figure 12 and column 10, lines 59-63).

Allowable Subject Matter

4. Claims 4, 8 and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. Claims 9-11 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

In regards to claim 10, the cited references taken individually or in combination fail to particularly disclose **a method for determining at least one farther switch in the network from each of the plurality of switches; and assigning a filter identification number to each of the plurality of switches based on said determining.** It is noted that the closest prior art, Behzadi setting the right side TTL (time to live) value and left side TTL value such that the furthest transmission link from the first network node is not utilized by the right or left side packet (see column 3 lines 41-46 also see the right TTL and left TTL equations in column 8).

In regards to claim 11, the cited references taken individually or in combination fail to particularly disclose **a means for determining at least one farthest switch in the network from each of the plurality of switches; and means of assigning a filter identification number to each of the plurality of switches based on said at least on farthest switch.** It is noted that the closest prior art, Behzadi setting the right side TTL (time to live) value and left side TTL value such that the furthest transmission link from the first network node is not utilized by the right or left side packet (see column 3 lines 41-46 also see the right TTL and left TTL equations in column 8).

Response to Arguments

6. Applicant's arguments filed on 1/24/2005 have been fully considered but they are not persuasive.

In regards to claim 1, applicant states on page 11 that Behzadi fails to include the ID number in the topology change. However, the examiner disagrees; figure 4 in Behzadi is an illustration of the labels switch router and includes a right side and left side port. Each port has a packet. Figures 5 and 6 illustrate the right and left side ring packets that include the TTL values as well as the source and destination Identifications of the respective switches.

In further regards, applicant states on page 11 that Behzadi fails to teach using a filter Id to change the topology and therefore, the examiner has deemed it necessary to use another reference namely Satran et al. (6430183 B1) to form a USC 35 103 (a) rejection as stated above.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay P. Patel whose telephone number is (571) 272-3086. The examiner can normally be reached on M-F 9:00 am - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPP 7/11/05

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Assistant Examiner
Art Unit 2666

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